

Knowledge about how species distributions shift through time increases basic ecological understanding, improves species management and conservation, and allows for enhanced predictions about the future. This type of research is difficult to conduct, especially for migratory waterfowl, due to complex seasonal behavior and long-term data availability. In this study, we used USGS' banding bird laboratory data, and a novel mechanistic measure of depth to water table as a proxy for wetland habitat availability to study shifts in waterfowl distribution patterns. Our main goal was to determine how spatial distributions of six migratory waterfowl species have changed from the 1950s to the 1990s. Distributions of all six study species, in all portions of the annual cycle, varied uniquely. These changes were unique in both geographic and climate space. Case studies were used to illustrate why distributions may behave in certain manners. We hypothesize that the identified shifts in distributions could be the result of changes in fall migration phenology, bird population dynamics, or land use. The distributions of migratory waterfowl are not static over the study period, and the manner in which the distributions change and, therefore, the underlying drivers of change are species and season specific.